CLAIMS

1. A laser arrangement, comprising:

a first resonant laser cavity (1);

a first optically pumpable gain element (4) located within said first cavity for generation of a first fundamental wavelength;

a second resonant laser cavity (2);

a second optically pumpable gain element (5) located within said second cavity for generation of a second fundamental wavelength;

a pump source (3) arranged to optically pump both the first (4) and the second (5) gain element;

a first non-linear optical region (6) arranged for sum-frequency mixing of the radiation generated in said first resonant cavity (1) and the radiation generated in said second resonant cavity (2);

a second non-linear optical region (7) arranged for frequency-doubling of the radiation generated in said second resonant cavity (2);

wherein said first and second non-linear regions are both located within said second resonant cavity.

2. An arrangement as claimed in claim 1, further comprising a beam splitter (8) for geometrically folding said first resonant cavity (1), said beam splitter (8) being located between said pump source (3) and said gain elements (4, 5), such that pump radiation emitted by the pump source (3) passes said beam splitter (8) before entering the gain elements.

3. An arrangement as claimed in claim 1, wherein at least one of said non-linear optical regions comprises a quasi-phasematching grating.

4. An arrangement as claimed in claim 3, wherein both of said non-linear optical regions are comprised of quasi-phasematching gratings located in a single element.

5. An arrangement as claimed in claim 1, wherein at least one of said gain elements is an optically pumpable semiconductor element.

6. An arrangement as claimed in claim 1, wherein at least one of said gain elements is a Nd-doped solid-state element selected from Nd:YVO_4, Nd:YAG, Nd:YLF, Nd.GVO_4 and Nd:Glass.

7. An arrangement as claimed in claim 6, wherein both of said gain elements are comprised of Nd:YVO_4, and wherein the first resonant cavity (1) is adapted for generation of a fundamental wavelength of 914 nm and the second resonant cavity (2) is adapted for generation of a fundamental wavelength of 1064 nm.

8. An arrangement as claimed in claim 1, further comprising a third non-linear optical region arranged for frequency-doubling of the radiation generated in the first resonant cavity (1).

9. An arrangement as claimed in claim 3 or 4, wherein the non-linear optical regions are constituted by a periodically poled crystal of KTP.

10. An arrangement as claimed in any one of the preceding claims, wherein a dielectric coating is provided on an end face of one of the gain elements (4, 5), said coating constituting a cavity mirror for both the first (1) and the second (2) resonant cavity.